

IDAHO DEPARTMENT OF FISH AND GAME

ANNUAL REPORT
HAGERMAN HATCHERY
1992

Prepared by:

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INTRODUCTION

Hagerman Hatchery is a state-owned resident trout production facility. The hatchery raises several strains of rainbow trout and various specialty species for statewide distribution. Hagerman Hatchery is the Idaho Department of Fish and Game's (IDFG) largest resident trout production facility. Built in 1947, it is located approximately 30 miles west of Twin Falls on the Snake River.

Funding is provided through license money. There was approximately \$385,882.00 from Hagerman's budget and approximately \$90,000.00 from the fish transportation budget used to rear and plant the 1992 production, not including capital outlay expenditures.

The hatchery is staffed with four permanent employees and two permanent transport operators. Twenty months of temporary labor are available for use during the year.

The hatchery water supply consists of approximately 42 cubic feet per second (cfs) from Tucker Springs and approximately 61 cfs from Riley Creek. The Tucker Springs water serves the 2,520 cubic feet of rearing space in the hatchery building, 10,530 cubic feet of rearing space in fingerling ponds, and up to 118,560 cubic feet of rearing space in large production raceways. Riley Creek water supplies the 287,280 cubic feet of rearing space available in 12 additional raceways. The Tucker Springs water is a constant 59°F year-round, and Riley Creek fluctuates from 52°F to 62°F on an annual basis.

HATCHERY PRODUCTION

Hagerman Hatchery reared and planted 4,790,763 fish during fish year 1992. Of these, 865,946 were planted larger than 8 inches long, and 3,924,817 were planted at 3-8 inches long (Appendix 4). The larger fish were rainbow trout and Kamloop trout of various strains, while the 3-8 inch fish consisted of rainbow trout, kamloops trout, two strains of cutthroat, coho salmon, brown trout, and cutthroat X rainbow hybrids (Appendix 4). In addition to the requests from the regions, 1,136 surplus brood fish from Ennis National Hatchery weighing 6,032 pounds, 934,905 rainbow trout weighing 100,428 pounds that were donated by Clear Springs Trout Company, and 1,750 rainbow trout weighing 1,100 pounds from the Hagerman Tunison Laboratory were planted by the hatchery crew.

The 482,363 pounds produced included 244,781 pounds of "catchable" fish, averaging 9.075 inches, that were planted in the State's waters and 237,582 pounds of fingerlings that averaged 5.22 inches were planted. The cost of producing an average 9.93 fish/pound (5.88 inches) fish was approximately \$0.98 per pound, or \$99.33 per 1,000 fish, or \$0.01688 (1.688 cents) per inch for the average 5.88-inch long fish reared (Appendix 4).

A total of 9,819,579 eggs were acquired to yield the fish produced. A total of 3,049,964 eggs were purchased, and the remaining 6,769,615 eggs were acquired from governmental sources at no cost (Appendix 1).

HATCHERY IMPROVEMENTS

Several hatchery improvements were completed this year. The hatchery crew replaced the roller screens that fed the Riley Creek raceways with dam boards and bar screens. The old roller screens were rusted through and were unpredictable in operation.

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A new hydraulic drive fish pump truck was built and put into operation this year. This unit has the capability of operating a 6-inch nonsubmersible fish pump or the new 4-inch submersible pump that Hagerman acquired this year. This truck will save many man hours in its set-up and operation over the previous system in use.

Other capital expenditures included all aluminum screens for the west raceway system. These are totally disinfectable and should cut disease transfer in this rearing system. Also, a few belt-drive fry feeders were acquired to help feed the early feeding fry in the hatch house.

A lot of time was spent this year on hatchery grounds maintenance. The crew installed over three quarters of a mile of underground sprinklers, planted two acres of grass, cleaned up a lot of miscellaneous brush and trees around the sewage treatment pond and settling pond, and rebuilt sections of the settling pond dike where muskrats had breached it.

Materials were purchased to erect a predator enclosure for the entire large raceway system. At a cost of nearly \$15,000.00, this enclosure will save over \$50,000.00 of fish losses each year due to bird predation. This structure should be constructed in early 1993.

Other improvements included modification and fine-tuning of fish loading rates in the raceways, feeding rates and diets for the 11 different species and strains of fishes reared this year at Hagerman.

The hatchery is still in dire need for moneys to install a pipeline to carry the Tucker Springs water to the raceways instead of the present open ditch system, and to screen and stabilize the quality of the intake water from Riley Creek.

These improvements were recommended by the Eagle Fish Health Lab in 1985 as part of an overall plan to control mortality at Hagerman, and these items have been cut from the budget for the past four consecutive years. These items are crucial steps needed to eliminate the IHN and other diseases that Hagerman has experienced for the past 14 years.

FISH HEALTH

The area of fish health at Hagerman Hatchery received the most effort and time from the hatchery personnel this year. We reevaluated the rearing environment, nutrition, medication usage, vaccine trials, and fine-tuning of feed projections. Continuous monitoring of several feed and medication trials by the fish hatchery staff resulted in better understanding of the progression of the epizootics that Hagerman has experienced in the past.

The Fish Health Lab was called to do work at Hagerman ten times during fish year 1992. Twenty-six accession numbers were assigned of which seven were due to clinical Infectious Hematopoietic Necrosis (IHN) infections, nine were due to environmental or bacterial gill disease problems, one to check dissolved gasses, two revealed Coldwater Disease, and the remaining dealt with a combination of IHN and Coldwater Disease. Other diagnostics revealed aeromonas and pseudomonas. Losses due to IHN/Coldwater Disease accounted for over 1,500,000 fish of various sizes. These losses began soon after the ducks began using the Wildlife Management Unit ponds in mid-December 1991 and continued through the planting season. Historically, the IHN/Coldwater disease outbreaks begin during this same time period. All strains of rainbow were affected to some degree by this complex. One entire lot of fry were eradicated due to suspected

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Infectious Pancreatic Necrosis (IPN) viral infection that resulted in approximately 30% per day losses.

The IHN virus and losses due to bird predation are the main concerns at Hagerman Hatchery; other losses were related to bacterial/environmental gill disease and other predators.

Additional work to control Coldwater Disease included feeding the early feeding fry Terramycin at a rate of 2% TM100 in the diet for 14 days in an attempt to control bacteria invasion before it became entrenched in the lightly vascularized tissues of the fish. If the bacterial invasion is not controlled early, it appears that a seed area is not effected by treatments later in the life of the fish and can contribute to the losses experienced at about 3 inches in length. This 14-day treatment, which commences 14 days after first feeding, is now routine procedure at Hagerman Hatchery.

FISH FEED

The fish produced during fish year 1992 were fed a total of 620,998 pounds of feed acquired from the contract sources (Rangens, Inc. and Bio-products) (Appendix 3). The overall conversion was 1.28 pounds of feed to produce one pound of fish, not including the weight of the mortality. One feed comparison test was completed during the year. Rangen's fry feed was compared to Bio-diet's fry feed (Table 1). Other diet testing revolved around the use of medications to control Coldwater Disease as indicated in the fish health section of this report.

PUBLIC RELATIONS

Hagerman Hatchery receives a large number of visitors and sportsmen throughout the year. The hatchery is surrounded by the Hagerman Wildlife Management Area (WMA). The WMA provides a large variety of outdoor experiences ranging from fishing and hunting and watchable wildlife viewing to family picnic uses.

The hatchery and WMA complex needs to have a comprehensive visitor use plan established to maximize visitor appreciation and the educational value of the area. An estimated 30,000 visitors toured the facility and used the surrounding public grounds this year.

This year, a Free Fishing Day clinic was attended by approximately 150 people. The hatchery crew, regional personnel, and others helped these people learn the basics of fishing. This year, a series of stations was set up where the public could learn about different aspects of the sport of fishing. This was met with great success. Thanks goes to all who participated in this successful event.

Hatchery personnel were called upon to give two water quality seminars. One was a cooperative effort with the Jerome Junior High School classes and the Buhl High School environment club. The second was an effort involving the College of Southern Idaho summer school classes for high school students. Both efforts were a great success.

Hatchery personnel also gave school tours during the spring, and several talks were presented to the local civic organizations.

SPECIAL PROJECTS

Fish Tagging Operations

The hatchery crew participated in several tagging operations during the year. Five of the Region 4 waters that Hagerman planted with catchables received jaw-tagged fish. The hatchery crew placed 1,800 jaw tags on fish that went to these waters. A hat was given out as an incentive for the anglers to return the tags.

Six waters in Regions 3, 4, and 5 received fin-clipped fishes this year from Hagerman. The Snake River received 196,250 adipose fin-clipped Kamloop trout. These were scattered from Centennial Park near Twin Falls to Glenna Ferry. The Snake River at Bell Rapids received 29,950 right maxillary-clipped catchable sized Kamloop trout. Magic Reservoir received 33,850 left maxillary-clipped catchables. Cascade Reservoir received 75,850 adipose fin-clipped Hayspur rainbow and 69,500 right maxillary-clipped Kamloop rainbow trout. Lastly, Chesterfield Reservoir in Region 5 received 20,000 adipose fin-clipped Kamloop catchables and Daniels Reservoir received 4,690 adipose fin-clipped Kamloop catchables.

All of these fish were marked in efforts to calculate the return-to-the-creel on these fish. The results of these tagging and marking efforts should be available from the various Regional Fishery Managers during the summer 1993.

ACKNOWLEDGMENTS

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Table 1. Results of Bio-products vs Rangens feed trial. (Rangens #3 crumbles and Bio-products 1.5 mm pellet)

Feed type	Begin number	End number w/mort	Gain (lbs)	Survival	Conversion	Cost/ lb gain
Rangens	188,349	71,641	449	38.1%	1.22	\$0.50
Bio-products	130,535	60,372	440	46.3%	1.07	\$0.44

Note: Rainbow cutthroat hybrids were used in this study.

A P P E N D I C E S

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Appendix 1. Numbers of eyed eggs received, species, and source.

Species/ strain	Number received	Source
Rainbow/ Kamloop	1,479,964	Gloyd Springs Washington
Rainbow, Kamloop x steelhead	1,570,000	Trout lodge Washington
Rainbow/ Kamloop	578,924	IDFG Hayspur
Rainbow/ Erwin	376,350	USFWS Ennis, MT
Rainbow/ Eagle Lake	275,000	USFWS Ennis, MT
Rainbow/ Eagle Lake	262,773 recd as fry	IDFG Nampa
Rainbow/ Hayspur	3,416,091	IDFG Hayspur
RC Hybrid	1,010,000	IDFG Henrys Lake
Henrys Lake Cutthroat	134,300	IDFG Henrys Lake
Snake River Cutthroat	134,700	Wyoming Game and Fish Tensleep, WY
Coho	844,250	USFWS Willard NFH
Brown Trout	93,300 recd as fry	IDFG Mackay
TOTALS	9,819,579 356,073 fry 10,175,652	

Appendix 2. Fish survival from eyed egg to plant, 1992.

Species/ strain	Number planted	On hand 1/1/93	Total produced	Percent survival
KS Troutlodge	855,591		855,591	54.5
K1 Hayspur and Gloyd Springs	913,585	138,693	1,052,278	51.1
RE Erwin	169,626		169,626	45.07
R9 Hayspur	1,462,498		1,462,498	42.8
R7 Eagle Lake	301,280		301,280	56.0
RC Henrys Lake	378,283		378,283	37.45*
C3 Henrys Lake	55,000		55,000	40.95
C4 Tensleep, WY	3,300	74,214	77,514	57.55
Coho	579,200		579,200	68.61
Brown	72,400		72,400	77.6
Total	4,790,763	212,907	5,003,670	49.17

* The RC eggs were received with approximately 50% hatched.

Appendix 3. Fish Feed used during 1992 at Hagerman Hatchery.

Size	Source	Pounds	Cost/ pound	Cost
#1,#2,#3	Rangens	9,000	\$0.3900	\$ 3,510.00
#1/TM	Rangens	100	\$0.5200	\$ 52.00
#4 Crumble	Rangens	18,550	\$0.2650	\$ 4,915.75
3/32" Pellet	Rangens	233,010	\$0.21	\$ 48,932.10
3/32" Pellet W/TM	Rangens	4,250	\$0.34	\$ 1,445.00
1/8 " Pellet	Rangens	39,500	\$0.21	\$ 8,295.00
1/8" Pellet W/TM	Rangens	6,750	\$0.34	\$ 2,295.00
5/32" Pellet	Rangens	245,390	\$0.21	\$ 49,078.00
Soft-Moist 1/32	Rangens	88	\$0.72	\$ 63.36
Soft-Moist 3/64	Rangens	264	\$0.72	\$ 190.08
Soft-Moist 1/16	Rangens	6,336	\$0.64	\$ 4,055.04
Soft Moist 1/8	Rangens	150	\$0.64	\$ 96.00
Soft Moist 3/32	Rangens	880	\$0.56	\$ 492.80
Biodiet #1, #2,	Bioproducts	3,342	\$0.81	\$ 2,707.02
Biodiet#3/TM	Bioproducts	6,336	\$0.96	\$ 6,082.56
Biodry 1.0 mm	Bioproducts	4,050	\$0.40	\$ 1,620.00
Biodry 1.3, 1.5 mm	Bioproducts	25,900	\$0.345	\$ 8,935.50
Biodry 2.5 mm	Bioproducts	16,750	\$0.32	\$ 5,360.00
Biodiet 1.0 mm	Bioproducts	132	\$0.64	\$ 84.48
Biodiet 1.5 mm	Bioproducts	220	\$0.64	\$ 140.80
Totals		620,998	\$0.24	\$148,350.49

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Appendix 4. Costs of fish produced at Hagerman State Hatchery, FY 1992.
 Costs reflect all costs budgeted except capital outlay plus
 \$90,000.00 of the fish transportation budget and are based on
 a weighted average of \$0.01688 per inch of fish planted
 (\$476,045/ 28,192,071 inches of fish planted).

Species	Actual production	Weight pounds	Costs to produce and plant	Cost per 1,000
CATCHABLES >8" long				
KS <9"	277,002	63,019	39,311.27	141.91
KS 9"	122,037	35,460	18,539.36	151.91
KS >9"	152,090	49,549	25,030.97	164.58
K1 <9"	6,690	1,304	959.88	143.47
K1 9"	67,450	22,466	10,247.00	151.92
K1 >9"	46,813	14,747	7,704.48	164.58
R9 <9"	104,578	28,060	15,004.85	143.47
RE <9"	22,500	5,625	3,228.30	143.47
RE 9"	51,422	18,960	7,812.03	151.92
RE >9"	15,364	5,591	2,463.77	160.36
SUBTOTALS	865,946	244,781	130,301.91	150.47
FINGERLINGS 8" and smaller				
BN 5"	72,400	2,498	5,582.22	77.10
C3 3"	55,000	550	2,785.20	50.64
C4 1.25"	3,300	3	61.78	18.72
CO 5"	579,200	11,900	48,884.48	84.40
K1 4-8"	792,632	63,375	71,983.66	90.82
KS 6-8"	304,462	38,493	35,118.36	115.35
R9 4-6"	1,357,920	81,360	117,009.20	86.17
R7 5"	301,280	16,450	26,071.83	86.54
RC 5"	378,283	13,930	29,929.19	79.12
RE 8"	30,340	6,523	4,097.11	135.04
RE 5"	50,000	2,500	4,220.00	84.40
SUBTOTALS	3,924,817	237,582	345,743.03	88.09
TOTALS	4,790,763	482,363	\$476,044.94	99.37

Appendix 5. Fish distribution from Hagerman State Hatchery 1992.

Species	Number	Pounds	Percent Planted in Region					
			1	2	3	4	5	6
K1	120,953	38,517			4.1	75.7	20.2	
KS	551,129	148,028		9.6.	35.1	28.4	18.2	8.7
R9	104,578	28,060			98.5	1.5		
RE	89,286	30,176		50.4	26.8	22.8		
SUBTOTAL Catchables	865,946	244,781	0.0	11.3	37.6	31.2	14.4	5.5
BN	72,400	2,498	-	-	-	37.8	62.2	-
C3	55,000	550	-	-	-	100	-	-
C4	3,300	3	-	-	-	-	10	-
CO	579,200	11,900	-	-	100	-	-	-
K1	792,632	63,375	25	-	37.9	37.1	-	-
KS	304,462	38,493	-	-	23.1	48.3	18.8	9.8
R7	301,280	16,450	-	-	100	-	-	-
R9	1,357,920	81,360	-	-	38.3	25.4	-	36.3
RC	378,283	13,930	-	-	-	19.4	-	80.6
RE	80,340	9,023	-	-	62.2	12.5	-	25.3
SUBTOTAL Fingerlings	3,924,817	237,582	5.0	0	46.4	24.3	2.7	21.6

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